

1 1. (presently amended) A method of adding a watermark to a sequence of executable instructions
 2 to render the sequence authenticatable,
 3 the method comprising the steps of:
 4 receiving the sequence of executable instructions and a key; and
 5 using the key to modifying the sequence of executable instructions ~~in a manner determined~~
 6 ~~by the key~~ so that the watermark may be obtained from the modified sequence, the sequence being
 7 modified such that the usefulness of the modified sequence for the sequence's intended purpose is
 8 not affected by the modifications made thereto and the watermark representing a watermark value
 9 which may be employed to authenticate the sequence, ~~the sequence being modified such that the~~
 10 ~~usefulness of the sequence for the sequence's intended purpose is not affected thereby.~~

1 2. (canceled) The method set forth in claim 1 wherein:
 2 the step of receiving the sequence of executable instructions further includes receiving a
 3 watermark value; and
 4 the step of modifying the sequence modifies the sequence so that certain of the instructions
 5 therein represent a watermark value.

1 3. (presently amended) The method set forth in claim 2 wherein the step of modifying the
 2 sequence includes the steps of:
 3 using the key to determine locations in the sequence including modification locations at
 4 which the sequence is to be modified; and
 5 modifying the sequence at the modification locations such that the locations specified by
 6 the key represent the watermark value,
 7 whereby the watermark value may be obtained from the modification locations.

1 4. (original) The method set forth in claim 3 wherein the step of modifying the sequence includes
 2 the step of:

3 inserting one or more executable instructions at each of the modification locations, the
4 inserted instructions having no effect on any output from the execution of the sequence of
5 instructions.

1 5. (original) The method set forth in claim 4 wherein:
2 the instructions at the locations specified by the key represent values of digits of the
3 watermark value.

1 6. (original) The method set forth in claim 2-1 further comprising the step of:
2 providing the watermark value to an authenticating entity that authenticates the
3 watermarked code.

1 7. (original) The method set forth in claim 2-1 further comprising the step of:
2 providing the key to the authenticating entity.

1 8. (presently amended) The method set forth in claim 1 wherein:
2 the modified sequence of executable instructions is modified such that when the modified
3 sequence of executable instructions is executed, execution state is produced which has a property
4 that depends on the key,
5 whereby the watermark value is a description of execution state from the modified sequence.

1 9. (presently amended) The method set forth in claim 8 wherein:
2 the execution state is a stack depth graph.

1 10. (original) The method set forth in claim 9 wherein:
2 the execution state is output from the execution.

1 11. (original) The method set forth in claim 10 wherein:
2 the property is an order of elements in the output.

1 12. (original) The method set forth in claim 10 wherein:

2 the property is an additional element in the output.

1 13. (original) The method set forth in claim 10 wherein:

2 the property is a class of an element in the output.

1 14. (original) The method set forth in claim 10 wherein:

2 the property is a constraint that is satisfied by elements of the output.

1 15. (original) The method set forth in claim 8 further comprising the step of:

2 providing a description of the produced execution state to an authenticating entity that
3 authenticates the watermarked code.

1 16. (original) The method set forth in claim 15 further comprising the step of:

2 providing the key to the authenticating entity.

1 17. (presently amended) The method set forth in claim 1 further comprising the step of

2 providing the key to an authenticating entity that authenticates the sequence.

1 18. (original) A method of authenticating a watermarked sequence of executable instructions, the
2 watermark having been produced by modifying the sequence according to a key such that certain
3 of the instructions in the sequence represent a watermark value,
4 the method comprising the steps of:

5 receiving the watermarked sequence or a copy thereof;

6 using the key to locate the certain instructions in the received sequence and read the
7 watermark value; and

8 using the watermark value to determine whether the received sequence is authentic.

1 19. (original) The method of authenticating set forth in claim 18, the method further comprising
2 the step of:

3 receiving another watermark value; and

in the step of using the watermark value to determine whether the received sequence is authentic, the watermark value is compared to the other watermark value.

20. (original) The method of authenticating set forth in claim 19, the method further comprising the step of:
receiving the key.

21. (currently-amended) A method of authenticating a watermarked sequence of executable instructions, the watermark having been produced by modifying the sequence according to a key such that when the sequence is executed, execution state is produced,
the method comprising the steps of:
receiving a description of the execution state; and
authenticating the watermarked sequence by confirming that the received description describes execution state produced by an execution of the modified sequence.

22. (currently amended) The method set forth in claim ~~20~~21 further comprising the step of:
receiving another description of the execution state, the other description describing execution state produced by the execution of the modified sequence; and
in the step of authenticating, comparing the description and the other description.

23. (original) The method set forth in claim 22 wherein:
the other description is a stack depth graph.

24. (~~original~~currently amended) The method set forth in claim ~~20~~21 wherein the execution state is output from the execution, the output having a property which can be determined using the key and
the method further comprises the steps of:
receiving the output from the execution; and
the step of authenticating includes the steps of
receiving the execution state;
employing the key to determine the property; and

9 comparing the determined property with the received description.

1 **25.** (original) The method set forth in claim 24 wherein:

2 the determined property is an order of elements in the output.

1 **26.** (original) The method set forth in claim 24 wherein:

2 the determined property is an additional element in the output.

1 **27.** (original) The method set forth in claim 24 wherein:

2 the determined property is a class of an element in the output.

1 **28.** (original) The method set forth in claim 24 wherein:

2 the determined property is a constraint that is satisfied by elements of the output.